WHAT IS CLAIMED IS:

1. A multitarget-capable method for distance and angle positioning of close-range target objects, including the following:

a) transmitting a characteristic signal with the aid of a transmitting antenna (11) of a first sensor element (10);

b) receiving the reflected characteristic signal at at least two adjacent receiving antennas (1, 2) of the first sensor element (10);

c) measuring the propagation time differences of the reflected characteristic signal to the two adjacent receiving antennas (1, 2) of the first sensor element (10) to determine the distances of the target objects to the first sensor element (10); and

d) measuring the phase differences of the reflected characteristic signal between the two adjacent receiving antennas (1, 2) of the first sensor element (10) to determine the angle of the target objects to the first sensor element (10).

2. The method as recited in Claim 1, which includes the following steps performed by at least one additional sensor element (10', 10") which is located at a distance from the first sensor element (10):

e) transmitting the characteristic signal with the aid of a transmitting antenna of the second sensor element (10', 10");

f) receiving the reflected characteristic signal at at least two adjacent receiving antennas (1, 2) of the second sensor element (10', 10");

g) measuring the propagation time differences of the reflected characteristic signal to the two adjacent receiving antennas (1, 2) of the second sensor element (10', 10") to determine the distances of the target objects to the second sensor element (10', 10"); and

h) measuring the phase differences of the reflected characteristic signal between the two adjacent receiving antennas (1, 2) of the second sensor element (10', 10") to determine the angle of the target objects to the second sensor element (10', 10").

3. The method as recited in Claim 2,
which includes execution of steps e) through h) for the case where the propagation time differences measured in the first sensor element (10) are approximately or equal to zero.

4. The method as recited in one or more of Claims 1 through 3,
wherein the characteristic signal is an FMCW, pulse, or pseudo-noise signal.

5. The method as recited in one or more of Claims 1 through 4,
which also includes the interconnection of a plurality of sensor elements (10, 10', 10").

6. The method as recited in one or more of Claims 1 though 5,
which also includes one or more of the following steps in any order:
varying the shape of the transmitting antenna lobe;
varying the shape of the receiving antenna lobe;
varying the panning angle of the transmitting antenna lobe; or
varying the panning angle of the receiving antenna lobe.

7. The method as recited in Claim 6,
wherein the shape of the lobe having a maximum or a minimum in the direction of the panning angle is varied.

8. The method as recited in one or more of Claims 2 through 7,
wherein the distance between two sensor elements is greater than the distance resolution of any of the sensor elements.

9. The method as recited in one or more of Claims 1 through 8,
wherein measurement of the propagation time differences of the reflected characteristic signal includes the detection of the maximums of the signal/response functions of the characteristic signal, and the phase differences are measured at the particular maximums.

10. A multitarget-capable sensor device for distance and angle positioning of close-range target objects, including a first sensor element (10) having a transmitting antenna (11) and at least two adjacent receiving antennas (1, 2),
in which the transmitting antenna (11) of the first sensor element (10) is designed for transmitting a characteristic signal;
in which the at least two adjacent receiving antennas (1, 2) of the first sensor element (10) are designed for receiving the reflected characteristic signal;
in which the sensor device furthermore includes means (21, 22, 31, 32, 40, 50) designed
for measuring the propagation time differences of the reflected characteristic signal to the two adjacent receiving antennas (1, 2) of the first sensor element (10) to determine the distances of the target objects to the first sensor element (10); and
for measuring the phase differences of the reflected characteristic signal between the two adjacent receiving antennas (1, 2) of the first sensor element (10) to determine the angle of the target objects to the first sensor element (10).

11. The sensor device as recited in Claim 10, which has at least one further sensor element (10', 10") which is located at a distance from the first sensor element (10),
in which the transmitting antenna (11) of the second sensor element (10', 10") is designed for transmitting the characteristic signal;
in which the at least two adjacent receiving antennas (1, 2) of the second sensor element (10', 10") are designed for receiving the reflected characteristic signal;
in which the means (21, 22, 31, 32, 40, 50) are furthermore designed
for measuring the propagation time differences of the reflected characteristic signal between the two adjacent receiving antennas (1, 2) of the second sensor element (10', 10") to determine the distances of the target objects to the second sensor element (10', 10"); and
for measuring the phase differences of the reflected characteristic signal between the two adjacent receiving antennas (1, 2) of the second sensor element (10', 10") to determine the angle of the target objects to the second sensor element (10', 10").

12. The sensor device as recited in Claim 11,
wherein the means (21, 22, 31, 32, 40, 50) are furthermore designed for detecting phase and propagation time differences with the aid of the second sensor element (10', 10") in the case where the propagation time differences measured in the first sensor element (10) are approximately or equal to zero.

13. The sensor device as recited in one or more of Claims 10 through 12,
wherein the characteristic signal is an FMCW, pulse, or pseudo-noise signal.

14. The sensor device as recited in one or more of Claims 10 through 13,
wherein a plurality of sensor elements (10, 10', 10") is interconnected.

15. The sensor device as recited in one or more of Claims 10 through 14, wherein the transmitting and/or receiving antennas are designed:
for varying the shape of the transmitting antenna lobe;
for varying the shape of the receiving antenna lobe,
for varying the panning angle of the transmitting antenna lobe, or
for varying the panning angle of the receiving antenna lobe.

16. The sensor device as recited in Claim 15,
wherein the shape of the lobe having a maximum or a minimum in the direction of the panning angle is varied.

17. The sensor device as recited in one or more of Claims 11 through 16,
wherein the distance between two sensor elements is greater than the distance resolution of any of the sensor elements.

18. The sensor device as recited in one or more of Claims 11 through 17,
wherein the means (21, 22, 31, 32, 40, 50) are furthermore designed for measuring the propagation time differences of the reflected characteristic signal using the maximums of the

signal/response functions of the characteristic signal, the phase differences being measured at the respective maximums.